

# ILLUSTRATIONS.

Air purifier (Lyman) 377, 378
Atmospheric hammer (Hotchkiss) 178 Axle-setting machine (Gorton) 294
Bag holder (Corbin) 78
Bag holder (Reynold) 374
Barrel roller (\*tephenson) 108
Beefsteak breaker (Putnam) 258
Beefsteak pounder (McNeill) 366
Bit fasteor (Kelly) 118
Bolt and rivet machine (Hardaway) 351,

Bolt autier (Babbett) 287
Bolt cutter (Babbett) 287
Boot-jack (Richardson) 182
Bread slicer (Summons) 54
Brick machine, "champion" (M
Rroom head (Browne) 336
Brush, steel, for boiler tubes 326

Rroom head (Browne) 326
Brush, steek, for boiler tubes 326
Calcalator (Peale) 162
Carrage top (King & Cardner), 223
Carrage top (Henriksen) 538
Chroomsteer governor and balanced
throttle (Tremper) 319
Chroometer, isochronal pocket (Fasold) 36
Check, Lithe (King) 118
Cleaning brass trunnons (Jonson) 406
Coal scuttle (Markland) 206
Crank-motion 181
Cleaning brass trunnons (Jonson) 406
Crank-motion 181
Crank boiler (Barries) 230
Crank pump (Richardson) 182
Cap, oil (Perguson) 342
Deodorizing petroleum, system of
((Heen) 325
Dental apparatus (Dibble) 210

(Green) 383 antal apparatus (Dibble) 210 errick for loading hay (Higgins) 63 oor, self-closing (Stagg) 1.7 filling machine (Gordon) 126

hrilling machine (Gordon) 125 Scentric (Walker) 5 4 Singine, oscillating (Grown) 255, 256 Singine, oscillating (Carter) 134 Ingine, portable (Carter) 239 Ingine, revolving, double-cylinder (Fos-ter) 35

Every 35

Faporator (Koh!y & Curtiss) 127

Faporator (Koh!y & Curtiss) 127

Faporator (Farmer) 158

Faucet, compression (Broughton) 154

Faucet, self-regulating (Fercival) 193

Flour bolt (Madigan) 82

Fruit gatherer (Little) 102

Funnel and measure combined (Dummer) 34

Furnace, soldering (Hollingworth) 70

Furance, soldering (Hollingworth) 70
Gage ecck (Broughton) 15
Gage, self-guiding (McCram) 390
Galter (Fowell) 350
Galter (Fowell) 350
Gas lighter (Harper) 294
Gate fastener (Woodcock) 6
Gate (Grenell, Bez. & Stoll) 392
Graduating lubricator for steam engines
(Broughton) 146
Huge (Wells) 50
Huge fr k (Wells) 50
Home-power (Sweetland) 302
Home-power (Sweetland) 302
Hose and pipe coupling (Barnard) 166
Lee house (Fisher) 1

Ice house (Fisher) 1 Indicator for streams (Bradley) 62 Jack, carriage (Field) 334 Jack, hydraulic (Blackwood) 254 Jack, hydraulic (Blackwood) 254 Lamp attachment (Newhall) 306 Lock protector (Desausse) 102

Millstone dress (Wing) 99 Mower, American (Van Anden) 22 Mucilage bottle (Boswell) 214 Nut chuck (Reilly) 334
Oil barrels, lining (Woodruff) 399
Oiler, glass top (Brought, n) 3

oner, glass top (Brought n) 3
Paint mill, "Unloop" (Brainard) 83
Paper tin (Bowell) 262
Pea sheller (Price) 198
Persteller, anonaratus for burning (McRinney) 207
Pip Million (McPiston packing (Kendall) 246
Pis on-rod packing (Conwell) 270
Plane stock, graduating circular (EvPlane) 390
Plane stock, graduating circular (EvPlane) 390
Plane stock graduating circular (EvPlane) 390
Plane stock graduating circular (Ev-

James Annies, granderses, annies anni nariz mill, hammer (Rix & Logan) 143 nariz mill, roller (Hitchcock) 198

Quarts mill, roller (HHERCOCK) Leo Rack, lay and grain (Thomas) 254 Rack, abeep-feeding (Barnard) 382 Radial drill press (Barr & Co) 95 Railroad chair (Jones) 27 Railroad, elevated (Andrew) 159 "Rantone," the (Button) 194 Ratchet wrench, self-feeding (Char 20

nacenet wrench, self-feeding (Chapmar 3)

Receiving magnet (Bradley) 206

Rivet (Smith) 198

Boad scraper and grader (More) 14

Rousing machine (Stearns) 398

Secure 18, double-faced (Tarbox) 30

Safety-valve balance (Camerer) 214

Sanda, lee (Fitzki) 166

Samus liee (Fitzki) 168

Samus liee (Emerson) 374

Secure 18, (Emerson)

eeding machins broadcast (Urienton, seding machins (Bart'ett) 522 swing machine (Bart'ett) 526 hell and fuse (Hotchkus) 286 hell and fuse (Hotchkus) 286 hutile (Cutter) 198 hutile (Cutter) 198 hutile (Cutter) 199 hutile (Cutter) 199 pring, carriage and car (Douglas) 303 pring, carriage and car (Douglas) 303 pring, gum clastic (Hoover) 278 lide-valve movement (Cochran) 130 save machine (Mowry) 130 save machine (Mowry) 130 save machine (Diekson) 111, 112 spindler (Stagg) 158 tope-gathering machine (Quimby) 46 tope-gathering machine (Quimby) 46

Tack-leathering machine (Bradford) 238
Thimble, stove-pipe (Lossie) 310
Time detector, watchman's (Buerk) 94
Tool, boring (Brodhead) 350
Trap, self-setting (Flautt) 15
Trabe sheet outer (Rice & Evered) 174
Twist drills, collets, and chucks (Morse)
230

230

Valve, balanced slide (Ives) 78

Valve, oscillating steam (Carbart) 110

Vise, combination pipe (Dart) 310

Vise, parallel traversing (Brainard) 194 Washer cutter (King & Smith) 342
Washing machine (Buckwalter) 34
Water heater (Baumeister) 270
Water wheel (Simonds & Godfrey) 6
Wrench, screw (Jordan & Smith) 342

## MISCELLANY.

Figures followed by stars (a) refer to illustrated articles.

Action and reaction 212
Agamenticus, the 143
Agricultural machinery 34
Alfichol for brandy, peaches, pure 231
Ale, new and old, the difference between 375
Algonquin and Winooski trial 216, 247, 295, 327, 339, 342, 372
Alloys 99, 406
Aluminum and aluminum bronze 222,
American Institute, grave charges against the 295
American Institute, grave charges against the 295
American Institute, grave charges against the 295
Amiline does a manufactory of 3
Aniline dyes, a manufactory of 3
Aniline dyes substitues for alcohol and methylene as solvents 227
Arts. the lost 23
Anvil, another monstrous cast-iron 30
Apprentices and journeymen 236
Apprentices and journey

Hereating experiments to the most rational experiments upon the 118

Ball and jet, the most rational experiment yet of the 20, 37, 53, 68, 274

Banks are 38

Banks are 38

Banks are 39

Belts, the state of 134

Belts, the power of 134

Belts, the power of 68

Belts to drive flour mills 36

Belts to drive flour mills 36

Bessemer process in America, the 256

Bessemer process, the chemistry of the 236

Bessemer process, the chemistry of the 321

Biss (arnaces, results obtained from 322

Blower, spiral 373

Boat propelled by a pump \$20

Boiler and engine, small 311

Boiler feed, a question of 356

Boiler incrustation, preventive for 372, 373

Boiler incrustations 407

Boiler making at Hartlepool, a feat in 310

ers, steam, field for improvement in 151

Boilers, steam, near for improvement at 151
Boilers, steam, troubles incident to 183
Boilting cloths, destruction of by in Sects 33
Sects 33
Sects 33
Sects 33
Sects 342
Sects 35
Sects 36
Sects

Cable, laying the Atlantic telegraph 47, 80.
Cable, breaking of the 133, 181
Cable—cockroaches 164
Cable, first defect in the and how it was repaired 117
Cable, another season.

Cable, breaking of the i33, 181
Cable—cockroaches 164
Cable—cockroaches 164
Cable, first defect in the and how it was reparred 117
Cable, another suggestion in relation to cable, another suggestion in relation to cable, the way the distance was measured to the fault in the 130
Cable was broken, how the Atlantic 206
Cable was broken, how the Cable of Cable was broken, how the Cable of Cable was broken, how the Cable of Cable was constructed to the Cable of Cable was constructed and traffic 31
Cartredges in cold weather 21, 52, 84
Cast iron, as a lubricator 180
Cast iron galvanizing 244
Cast iron galvanizing 244
Cast iron galvanizing 246
Cast iron galvanizing 246
Cast iron galvanizing 246
Cast iron galvanizing 247
Cast for a galvanizing 248
Cast steel, to weld 33
Cement, Armenian or diamond 179
Cement for aquaria 211
Cistern water, keeping sweet 39
Chain machune, new 355
Chailenge accepted 373
Chailenge accepted 373
Chailenge to the navy, the 87
Changing alcohol into vinegar 199
Chemical refuse, great profits from 21
Cholee bit. a 98
Cholera, Valpeau on 337
Chuck for wood or metal, new 163\* 211\*
Citock, the perpetual motion 52
Clock with invisible works.

Climate of California, Tyndal and the 167 the perpetual-motion 52 Clock with invisible works, a third kind of Cloth and leather, water proof, the best substance for making 169 Cloth, wire bolting 244 Coal-gas explosions 466 Coal-mining machines are not used, why 21 Coasting trade being done by steamers, the 263

Coin, a remarkable 166 Coins, new form for 214 Colors 306\* Colors 306\*
Compasses at sea, correction of 366
Compress, raising the frigate 97
Corn-sugar patents, the 183
Corrosion of siectro-plated articles 20
Coal, bituminous, describation of 66
Collars, paper, how made 99
Commencement of Folytechnic College
of Pennsylvania 136
Compasses of the Monadacck 366
Compensation and loss in the universe
164

Compensation and loss in the universe 164
Controversy, the naval 97, 200
Controversy, the naval, letter from Mr.
Dickerson 131
Cotton, new machine for seeding 83
Cotton picker, 301,000 for a 148
Cotton, picking, by machinery 116, 276
Cotton picking, by machinery 116, 276
Cotton pinters, an idea for 148
Cotton supply, the 113
Cotton supply, the 113
Crack and eccentric, the 100
Crack and eccentric, the 100
Crack and eccentric, the 100
Crack of the Chicago lake tunnel 113
Crotton bugs and cockroaches 181

Croton bugs and cockrosches 181

Dead, identification of the 73
Debt, the national 312
Deck scrapers 126
Dictator, the 119
Dipping a rasor in hot water 245
Disinfectant, a convenient 148
Disinfectant, a convenient 148
Disinfectant, a convenient 148
Dismond drills, improved method of setting splinters for 53
Discoveries and applications of science, notes on new 52, 45, 114, 129, 160, 216, 320, 336, 550 policy of America 176
Dryer, fruit 132
Dry goods, the way sold in New York 274
Drying by steam 148
Diniderberg, launch of the 172

Earth currents and the Atlantic cable 167 Earthquake, curious effects of an 336 Earth's rotation, effects of the 228 Editorial correspondence 355 Earth's rotation, effects of the 228 Editorial correspondence 355 Eggs, to keep 34 Bight-hour system—the way to get it 38, 274

in the second se

kee 108
Explosion of the Arrow's boilers, the 168
Explosions, discoveries in boiler 336, 391
Explosions from explosive gases, boiler

Explosions from explosive games,

Explosion, St. John boiler 321\*, 388

Explosions, inexplicable boiler 199

Explosive substance, a new 161

Exposition, the great Paris 247, 357, 398,

Eye service 322

Eyesight 245

Eyesight, to preserve the 212

6

portable 332

Gas, oxygen 382

Gas, oxygen 382

Gears, the pitch of 340

Gluspos caught fire, how the 210

Gluse, manufactures 163

Glue manufactures 182

Gold as malagamating, improvement in
the 65

Gold by head, separating 408

Gold by head, separating 408

Gold, the present yield of 303

Goods, water-proof 370

Governor, as emisble 200

Grain dryers and separators, exhibition
of 256

Gravity, railroad 404

Grave, miny 134

Gun-barrels, straightening 163, 292\*

Gunpowder, important oxperiments

with 145

Gunpowder, important oxperiments

Gunpowder—Jupiter's moons 165 Gunpowder, non-explosive 262, 303

Hair, to restore the 132
Heat, absorption of by vapors and odors
38
Heat and force 36
Hoosic tunnel 266
Hoop-skut manufactory, a 174
Human fai ibility 142
Hydraulic lifts for warehouses 279

-

Ice cream 8:

Illustrations, the value of 279
Improvements of the last nine years 16
Improvements of the last nine years 16
Improvements of the last nine years 16
Index for change wheels in screw cutting 356
India-rubber covers for cans wanted 148
India-rubber, substitutes for 148
India-rubber (spirit provided in the last pr

In the control of the

Inventora, Engilah co-operative society
343
Inventora, important to southern 335
Inventora, important to southern 335
Iron and steel association, American 190
Iron-clads, boilers of the 231
Iron-clads, French 180
Iron as a ship-building material, galvanising 160
Iron and steel manufacturers, annual
annual meeting of 464
Iron in blood, phosphate of 460
Iron making 356
Iron, new theory of 351
Iron, new theory of 351
Iron, garength of 320
Ison strength of 320
Ison str

Jewelry manufactured at Birmingham, England, the 308 Joint-stock company, a novel 245 Jupiter's moons in a looking glass, see-ing 179\*

T.

Labels to tin, attaching 53
Lactometers not reliable 178
Lumps, safety 224
Lakes, the great, to be connected with
the Mississippi 338, 46,2°
Lanters, the double magic 306
Lathe, the foot 386°, 388, 462°
Law of sex, the 148
Lead, crosion of 35
Lenoir gas engine, modification of the
399
Levers, a question of 191

Lenoir gas engme, modification of the 383
Levers, a question of 181
Levers, a question of 181
Librarian of the Patent Office 214
Lighti, absorption of at different temperatures 82
Lighti, a new 86
Lighti, a maximidal 176
Lightning, arresters 227
Lightning, effect of 130
Lightias, green and red, on carriages 308
Lightias, green and red, on carriages 308
Liquors 4.4 outs. a.v clarifying 326
Lock making, progress of 162
Locomotive, a novel 166
Locomotive, a novel 166
Locomotive, a heavy 183
Locomotives, how made 230\*
Locomotives, how made 230\*
Locomotives, how English are made 259
Locomotives, Paterson 207
Lumber, seasoning 33, 180
Lumatic, singular reak of a 62
Luxury, ancient 163

Lunatic, singular freak of a 62
Luxury, ancient 163

Machine works, the areat English 208
Machinery, boot and shoe 38
Machinery, for rice culture wasted 310
Machinery for rice culture wasted 310
Machinery wanted for Textus 23
Machinery wanted south 262, 357
Magnesium 314
Magnesium 134
Magnesium 1ght, economic 191
Magnesium light for telegrapus 97
Mainspring question, the 100
Mainspring la watches—a new idea 36
Marposa estate, and end of the 318
Mechanics' and inventors' guide 216
Mechanics', houses for 199
Mil picks, tempering 20, 100
Minc, descent into a 305
Mismanaged concerns 55
Mountains are colder than valleys,
why 132
Monitors, an English ship-builder on
the 362
Mowing machines, one-horse 15

Nantucket "tips" 179
Narrows a day at the 115
National debt capital? Is 8, 25
Naval trial—report of, the experts 232
Navy department, report of the chief of
the bureau of ordinance 403
Negarive slip 257, 307, 308, 324, 327, 388
Nitro-glycerin 323
Noise an indication of rain 100

Oil regions of Penn-ylvania 128
Oils, cenanty at the use of 131
Oils, cenanty at the use of 131
Ores, chemical and mechanical treatment of 83
Organ, a large 382

Page, compliment to Prof. 460
Paint for bridges, fire-proof 340
Paint for important discovery in 302
Paper, the manufacture of 319
Paradoxical power, Mr. George Paradox
Paper, the manufacture of 319
Paradoxical power, Mr. George Paradox
Paraline for water-proofing 54
Patentees, right of Joint 400, 47
Patent of George Paradox
Laws 335
Patent Office, condition of the-suggestions about amending the patent
Laws 335
Patent Office, history of the 415
Patents, introduction of 276
Patent system, our 7
Patents, sales of 231, 242
Patents at cell color process of 338
Patents at cell color process of 338
Patents at cell color process of 338
Patents, recent English 69
Patents, recent English 69
Patents, at cell 238
Peat for fuel manufacturing 150
Peats at cell 238
Peat for fuel manufacturing 150
Peats at fuel 238
Peat for fuel manufacturing 150
Peats at fuel 238
Peat for fuel manufacturing 150
Pears, steel 338
Perfermers 211
Perpetual motion, another plan for 165
Petroleum, Assures in sand rock the reservoirs of 227

Petroleum for fuel 343
Petroleum-lamp flame, brass in a 373
Petroleum-lamp flame, brass in a 373
Petroleum for England, brass in a 373
Petroleum for England, brass in a 373
Petroleum in England, and the Petroleum in England 283
Petroleum oil, improvement in distillation of 118
Petroleum refining 164, 282
Petroleum refining 164
Petroleum refining 164
Pining paper of 29
Photographers, interesting to 129
Photographer developer, new 379
Photographing the moon 167
Photographing the moon 167
Photographing the moon 167
Pictore cleaning, new process of 150
Pilarat, the strength of cast-tren 299
Pitture cleaning, new process of 150
Pilarat, the strength of cast-tren 299
Pitture cleaning, new process of 150
Pilarat, the strength of cast-tren 299
Pitture cleaning, new process of 150
Pilarat, the strength of cast-tren 299
Pitture cleaning, new process of 150
Pilarat, the strength of cast-tren 299
Pitture cleaning, new method of photo-relievo 19
Problem, new method of photo-relievo 19
Problem, a mechanical 132

Problem 148
Problem, a mechanical 132
Problem, a philosophical 132
Problem, the vortex 302
Problem, trade 311
Pusale jugs 202
Pusale jugs 202
Pusale jugs 129 Printing, new method of photo-relievo 19 Problem 148

Quartz crusher and pulverizer Question, a woman's 372 Queries for the cur.ous 176 Queries on belts answered 100 Query 195

Query 158

Racing, railroad 94
Radiation, Tyndail on 274,\* 304
Radiroad, early 245
Railroad, the Facilic 48
Railroad, the Facilic 48
Railroad, the Facilic 48
Railroad, the Facilic 48
Railroad, the Pacilic 48
Railroad, the Pacilic 48
Railroad, the Pacilic 48
Railroad, the Pacilic 48
Railroad, anew atmospheric 128
Railroad, new at

Rudders, balanced 257
Russia 21

Sandwaper finish 260
Sandwich Islands 68
Savings banks in England 239
Sawdust, utilizing—oxalic acid 465
Sawing, rapid 165
Sawing, rapid 165
Sawing, the steamer, and her submarine apparatus 364
Sazos, the esteamer, and her submarine apparatus 364
Scales from steam, how to cure 322
Schools of England, the great 87
Schools, the Conper Union night 242
Schools of England, the great 87
Schools, the Conper Union 181
Scerews, headless, for hote 341
Sea-weed as an insulator 210
Seeing through water 510
Seeing through water 513
Shahts, straightening 359
Shawing notes, a new way of 3
Sheathing notes, a new way of 3
Sheathing notes, a new way of 3
Ship-building in Boston 150
Ship, extraordinary endurance of a steel 31
Ship-building in Boston 150
Ship, extraordinary endurance of a steel 31
Shooting a candle through a board 244
Shot-making in New York 239
Show, an insect 305
Show, international iron-clad 54
Show, an insect 305
Show, in insect 305
Show, in insect 305
Show, in insect 305
Show, an insect 305
Show,

Spectral analysis to astronomical phenomena, application of,the 286 nomena, application of,the 286 nomena of the way to bleach 36 startling announcement 242 as having 238 startling announcement 243 startles, auggestions for a cast-to-244 steam plast for from furness 164 steam eylinders, lackeling 36 steam eylinders, lackeling 36 steam, exportating titlizing 263 steam in long pipes 244 stilizing 263 steam, what is a cheeked? 311 steam, what is a cheeked? 313 steam, what is a cheeked? 314 steam, what is a cheeked? 315 steam, what is a cheeked

Sieel. Henry Bessemer on his process of making 239 tooch business, enormous 281 story of the man who flew 93 stores, ember-consuming 340, 373 irrawberry harvest 2 mithide of lead, the action of light on 350

336 Sugar candies, how to cast 228 Sugar making, a radical change in 243 Sugar making, great improvement in 199 Sun on fire, effect of the 307

Taxation, prince to the 397

Taxation, prince of the 397

Taxation, prince of 152

Teeth, how artificial are made 357

Telegraphing in bad weather 30

Telegraph a secret 215

Telegraph a secret 215

Telegraph in India, curious obstacle, to the establishment of the 371

Felegraph, the Russian-American 389

Theaker, the Hon. Thomas C. 222

The fool and his money 163

Throttle valve, look up the 310

Throttle valve, look up the 310

Tim-how sampled, assayed, and smelted 67

Ougle joints as process.

Timber, preserving #11

Toggle joints as power 70

Toggle joints as power 70

Tool above or below the center 132, 149
Tool borrowers 87

Too highes, the way wooden are made 7

Too our readers on the Pacific coast 311

Torredo, the electrical interican 350

Torredo as in England interican 350

To where it may one communication 119

Transmitting power 195

Trans, interesting details of animal 33

Trial in working steam 387

Trials of a patentee 21

Trials, patentee 21

Trials, patent-law 341, 337

Trifies 246 frifes 246
Tubes for artists' colors are made, the
way 132
Tunnel, the great Mont Cenis 245
Tweer for furnaces, improved 5°
Twenty years ago 135, 150
Twenty thousand times of rock at :
olast 130

olast 150
Ultramarine, manufacture of 192
Up in a balloon 212

vache lissie, manufacture of 192

Vache lissie, manufacture of 83

Falve, how to set a chide 51 70

felocities 66, 132

entilating machines and furnaces 161

ortex question 245

anti-ortex.

Want of the day 87
Wants unsupplied 176
Ware, tarnishing of silver-plated 324
Washing recipe 193
Water for a steam engine, scarcity of

Washing recipe 193
Water for a steam engine, scarcity of 399
Water tauks for ships 128
Water, experiments in burning 391
Water, experiments in burning 391
Water power in Manesota, 96
Water power and unesses 143
Water power and unesses 143
Water power and belts 55
Water wheels by night and day 4.52
Water wheel, improved current 374
Weatht, increase of 235
Water wheel, improved current 374
Weatht, increase of 235
Water wheels by night and day 4.52
Water wheel, improved current 374
Weatht, increase of 235
Water wheels by night and day 4.52
Weatht, increase of 235
Water wheels by night and day 1.52
Weatht, increase of 235
Weatht, increase of 235
Weatht, increase of 235
Weatht, increase of 235
Weatht, increase of 127
Weatht increase of 127
Weatht increase of 127
Weatht for blust 131
Water washing tools, faults in 373
Good, mode of rendering plastic 39
Working early and late 152
Oork and power 71, 167
Gork definition of 244
Gork in machine shops 161
Gorkmanship, 200
Gork in tomato, a polsonous 245
Weath, experiments with 405

Yeast, experiments with 406

Zincing cast iron 2.2 Zinc manufacture in Illinois 384 Zinc mmetring, patent 191 Zirconium 2.8

## PATENT CLAIMS.

Acid, manu'acture of pyroligueous 120 odding machine 106 uid, manu acture of pyroligueous 1.21 diing machine 105 r. apperatus for compressing 88 r. apperatus for carbureting 24, 67, 59, 133, 134, 122, 218, 219, 232, 249 (2), 231, 313, 44, 46, 376 rin buildings and chambers, cooling 26 r. mode of cooling 26, 378 arm and lock, burgiar 233 arm, fire and burgiar 230 bumen and prussiate of potash from blood, manufacture of 377 techoi, apparatus for rectifying 29, 330 cobid, etc. distillation of 57 manus, perpetual 277 habit, carpicarphile 57 malgamator 8, 8, 129, 23, 252, 297, 360, 360 and 120 apparatus for 215 and 215 a

Amaigamating apparatus 216
Amaigamating paparatus 218
Amalagamating pan 27
Ambalance 251
Anchor 171, 292
Anchor, tripler 293
Andiline roles for dyeing and printing method of preparing 233
Andiline roles for dyeing and printing method of preparing 234
Andiline role dyegetable substances, proAnnihilator, fire 292
Annihilator, fire 293
Ansiseptic vapors, apparatus for impregnating the air of rooms with 11
Apple cuttler and corer 234
Apples, instrument for gathering 330
Apples, machine for grathering 330
Armor for vessels of war, defensive 137
Armor for vessels of war, defensive 137

Bag neder 88,378
Bag receiver, railway 513
Bags, machine for making paper 150, 203
Baggage check 153, 203
Baggage check 153, 205
Bailties applicate for roacking tobacco 218
Band to 150
Band cutter for thrashing machine 9 (2)
Band for bundles 137
Band of 2 a.ad. dress 57
Banlo 137
Band for a.ad. dress 57
Barlo 137
Bard for a.ad. dress 57
Barlo 137
Bard for a.ad. dress 57
Barlo 137
Bard for a.ad. dress 59
Barrel mad 379
Barrel filler, self-closing 394
Barrel filler, self-closing 394
Barrel heads, cutter for 312
Barrel

neverage 25
Billiard ball 265
Billiard table, chalk holder for 440
Billiard table, chalk holder for 440
Billiard sain 28,1455
Binnacle 26
Bistoury 284
Bit, bridle 376
Bit stock 10, 248, '281,1377
Blacking 266, 315
Blacking box 105, 12)
Blades, construction of screw-propeller
405

3lades, construction of screw pro peller 493
3lind, enameled, for windows etc. 393
3lind, venetian, for windows 376, 379
3lock for car brakes 392
3lock, tackle 255
3lotter 393
3lotter, paper weight, rule, cutter and screw of combination 366
3lounes of combination 366
3lowpip 394
3oard, machine for making paper 201
3oat, 17e 107
3oat, torpedo 122
3obbin holder for spinning 232, 238, 239
3lobbins and shuttles, mode of securing 170
3lobbins and shuttles mode 170
3lobbi

us, machine for windi

54 er, east-iron 298 er, alarm coffee 234 er feeder, automatic 202, 203, 218 (2) er for treating stra = 249 er flues, instrument for cleaning 89,

389
iller, locomotive 120
iller furnace 170
iller, sheet-metal 153
iller, steam 74, 105, 307, 233, 331, 403
illers, closing hand-hold plates in steam
106 Boilers, closing hand-hold plates in steam 106
Boilers, preventing incrustation of steam 314 (2) 134
Boilers, setting steam 248
Boilers, setting steam 248
Boilers, setting steam 248
Boile, done 76, 136, 160, 323, 339
Boils, done 76, 136, 160, 323, 330
Boils, done 76, 136, 160, 323, 330
Boils, machines 138, 138 (2), 170, 202, 218, 380
Bomb-lance for killing whales 138
Bomnets and hats, apparatus for embossing 91
Bonnets and hats, machine for pressing 136

ing 9

in

# C

Cable, telegraph 250
Caliper 8, 410
Calk, heel 578
Calks, he 1578
Calks, horse-shoe 345
Calk, to 27
Camera stand 392
Can, oil 42, 186, 217, 314
Can, preserve 379
Cans, instrument for opening s
other 27
Cans, shermetal 267
Cans, shermetal 267
Cans, shermetal 268
Candles from parafine 217
Cane stripper 121, 266
Cannon, machine for turning of 297
Cans, shermetal 267
Candles from parafine 217
Cane stripper 121, 266
Cannon, machine for turning of 297
Cap, chimney 219
Caps of oil cans, method of pa
Capstan 577
Capstan, power 363 Capstan 3/7 Capstan, power 362 Capstonelfor working beater hay pro

Capetonicity was all beater in a promein 170 Car, locomortive 3491 Car, platform, etake-holder for 73 (2), 88 Car, railway 4, 153, 170, 184, 281 Car, allway 14, 153, 170, 184, 281 Car, aleeping 217 Car spring 8, 393 Car track, railway 163, 184 Car truck, railway 163, 184 Car wheels, device for annealing 393 Car wheels, device for annealing 393 Car wheels, mode of adjusting upon axles 329 Cars, mode of coupling and uncoupling 185

axies 329
Cars, mode of coupling and uncoupling 185
1875
Cars, starting 107
Cars, street, mode of switching 90
Cars, street, mode of switching 90
Cars, from the track, device) for reCard, apparatus for mounting and printing 169
Carbon batteries, connector for 376
Carbon batteries, connector for 376
Carbon batteries, connector for 376
Cards, apparatus for mounting and printing 169
Carpet bag 529
Carpet fastener 25, 169, 201
Carpet streetcher 59
Carpet age 329
Carpet fastener 27, 169
Carriage, children's 73
Carriage, children's 73
Carriage, children's 73
Carriage, children's 73
Carriage top 57, 169
Carriage, connecting theirs to 10
Carriage top 57, 169
Carriage so, 212, 137, 313
Cartridge box, revolving 153
Cartridge cose, metallic 67, 267, 262
Cartridge cose, metallic 67, 267, 262
Cartridge rowneather for necking 281
Cartridge, metallic 75, 267, 262
Cartridge rowneather for breech-loading
Cartridge, tobacco 379
Caseable of guns, machine for finishing the 233
Case, cligar 382

ne 233
, cigar 362
, boot-blacking 89
s, glass, construction of s, machine for driving 3, 137
s, graphs and all

Cascalie of guns, machine for finishing the 233
Case, cligar 362
Case, boot-blacking 89
Cases, glass, construction of 57
Cases, glass, glas

Clamp for straps 124
Clamp, gas fitters 25
Clamping device 28
Clamping device 28
Clamping device 28
Clamp, plant 28
Clamp, plant 28
Clamp, plant 28
Clamp of the composition of the clamb, plant 28
Class for hoop skirts apparatus for clenching 20
Class for hoop skirts apparatus for clenching 20
Class for hoop skirts apparatus for clenching 20
Class for 18
Clay the composition of the clenching 20
Clever, plant 39
Clay the composition of the clenching 20
Clever, plant 30
Clenching 20
Clever, flower 73
Cleck, gasta 20
Clock, gasta 20
Clock, steam 20
Clock,

wood 286
Composition, rooting 392.
Condenser 57, 201Cooking, washing, etc., apparatus for 376
Cooking to the saming, etc., apparatus for 376
Cooking, washing, etc., apparatus for 376
Cooking, to the saming of the saming sort, apparatus for 376
Cooking, to the saming sort, apparatus for 376
Cooking, to the saming sort, apparatus for window same 286
Cords, brand, etc., machine for starching and glazing 499
Cords, brand, etc., machine for starching and glazing 490
Cords, saming and the saming sort saming and saming sort saming so

ork machine 216
Jonnet 202
Jonn planter 40, 41, 90, 120, 121
Jorn planter 40, 41, 90, 120, 121
Jorn planter 40, 41, 90, 120, 121
Jorn planter 40, 41, 90, 120, 121
Jornat 57
Joton chopper, cultivator and drill 104
Jotton, machine for combing 201
Jouler, stable 74
Jouling, car 42, 56 62, 72, 88, 123, 135
J77, 201, 217, 238 (2), 287, 328, 329 (2),
300, 388, 346, 378, 338, 409
Jouling for drill or pump rods 136
Jouling for shafts of boring tools 5,
234, 249
Juniling for shafts of boring tools 5,
234, 249

D

Damper 9, 27, 57, 233, 248, 297
Damper and ventilator 202
Damper, stovepire 89, 169
Dancer, automatic 291
Denacer, stovepire 89, 169
Denacer, photographer's 56
Defiscion, duplicating, for photographic
Denatal apparatus 291
Decodorizing composition 378
Derrick, 75, 233
Desk, folding 137
Detergents, manufacture of 264
Die for curving aprings 313
Die for forging and shaping pistel
frames 353
Dies for furniture nails 188
Diseases, treating by condensed air 298
Dissibility, apparatus for 56
Disching machine 106, 120 (2), 121, 361
Dioor' furnace, 91
Door' knob, extension 74
Door threshold 361
Drag bar and teeth for grain drills 201
Drawers 30
Drawing beits together, machine for 298
Drawing board, symmetrical 297
Drawers 202
Drawers 202
Drawing board, symmetrical 297
Drawers 202
Drawing 503
Drawing 504
Drawing 504
Drawing 505
Drawing 505
Drawing 507
Drawers 203
Drawing 506
Drawing 507
Drawers 203
Drawing 507
Drawers 203
Drawing 508
Dra

Drill, oil 104, 184
Drill, rock 9, 73, 88, 91, 121, 217, 297, 378
393, 394
Drill-rod attachment 330
Drill, well 40, 73, 88, 105, 106, 154
Drill, wheat 9, 26 (22, 233
Drilling machine 346, 362, 377
Dry dock 266
Dryer, clothes 40, 88, 152, 345, 361
Drying apparatus 344
Dryes and colors, preparation and manufacture of 282
Dumb bell 40
Dust pan and brush 249

Dumb bell 40
Dust pan and brush 249

Egg beater 40, 106
Egg boater 14, 293
Egg boater 14, 293
Egg boater 14, 293
Egg boater 14, 293
Eggs, etc., de-sicasting 267, 362
Eigect, of deen wells 344
Elector, liquid 74, 169
Elector, of 1313, 390
Elector, water 169
Elector, water 169
Elector, water 169
Elector, water 169
Elector, magnetic regulator 187
Elector, magnetic regulator 187
Elector, magnetic regulator 187
Elector, grain 27
Elevator, hay 377
Elevator, hay 377
Elevator, hay 377
Enamels, paints, etc., composition for 184
Engine and meter, hydraulic 239
Engine, carding 233, 265, 393
Engine, gase 123
Engine, govern 167
Engine, politic 167
Engine, steam 10, 40 (2), 59, 186, 346, 412,
Engine, steam, automatic stop motion for 25
Engine, steam, piston for 74
Engine, steam, valve gear of 25
Engine, traction for common roads 185
Engines, oscillating, valve gear for 88
Engines, oscillating, valve

### W

Fabric for skirt lining and binding 250
Fabrics, manufacture of felted 105
Fabrics, manufacture of water proof 58
Facing mold 121
Fabrics, manufacture of water proof 58
Facing mold 121
Fan 37,
Fan blower 42, 90, 382
Farming, apparatus for 248
Farming implements, means of attach
ing teams to 344
Fastening for shoes 201
Fastening, window-blind 296
Fastener, horse-collar 88
Faucet, beer 9
Faucet, measuring 2, 41
Fastener, boor 170
Fastener, wind 50
Fastening, trace 257
Fastening, trace 257
Fastening wheels and pulleys to shafts
344
Faucet 42, 59, 90

Fisching, trace and pulleys to many pastening wheels and pulleys to many pastening wheels and pulleys to many pastening paddle-wheel 104, 120, 329 Feeder, nail-plate 489 Feeder, nail-plate 489 Feeder and plate 25 Feeder from 125 Feeder 125 Feeder 125 Ferrule for boiler tubes 217 Ferrulizer 202, 345 Feeder 202, 345 Feeder for animals 104 Fibrous plants, machine for disintegiing 322, 498 Field-marker for planting 41 Field fence and gate combined 298 Field-marker for planting 41 Field fence and gate combined 298 Fiel, expert 41, 169, 400 Files, machine for grinding 91 Files, machine for grinding 91 Files, machine for grinding 91 Files and cooler, combined 400 Filter for artesian wells 312 Filter, pump 378 Fire airm 171 Filter and cooler, combined 400 Filter for artesian wells 312 Filter, pump 378 Fire airm 171 Filter 342, 242, 243, 333, 284, 183, 184, 242, 243, 335, 3579

Fire escape 10, 297
Fire-kunding, composition 282
Fire-place 56
Fire-kunding, composition 283
Fire-place 56
Fish, apparatus for curing and drying 53
Fish, decoy 363
Fish decoy 363
Fish 321
Fish 322
Fiax 322
Fiax 321
Fish 322
Fiax pulling machine 58
Fiece folder 218
Fleeces of wool, machine for putting up 281
Float, shoemaker's 40
Flour and meal, method of preparing for transportation 27
Flour and meal, method of preparing for transportation 57
Flour packer 20, 38, 301
Flower-pots, machine for cleaning 88
Flues, steam boller, machine for removing scale from 12!
Fly brush for tables 344
Fodder, machine for cutting and grinding 137
Fog alarm 217
Folding rules, joint of 10
Folding tules, joint of 10
Folding tules, joint of 10
Folding rules, joint of 10
Folding rules, joint of 10
Folding rules, joint of 10
Folding tules, joi

ree-putaly, reserving 88 priseground 88 rging machine 41 untain and seat for barbers' shops combined rotary 153 une and sash, window 266

frames, bottles, etc., composition for ng the stem and dead wood of ships 392 eezer, ice-cream 186, 376, 409 eight, device for unloading or storic eeest. derios for un loading or storing eight, derios for un loading or storing telescont and the composition 170 telescont and the composition of ce for treating ores 313
ce, glass 88 rance for treating ores 313
rance, glass 89
rance, glass 14
rance, bot air 34
rance of steam boiler, etc., bydrocarbon bor 37
rance of steam boiler, etc., bydrocarbon bor 37
rance of steam boiler, etc., bydrocarbon bor 37
rance dling for puddling 281
rance, reverberatory 313
rance, timan's 153
rances, water door for 26 47 Gage, carpenters' 56, 57, 281
Gage, conical turning 104
tiese, drill 378
Gage disphragm pressure 74
Gage for setting the pitch to wagon
Gage for setting the pitch to wagon
Gage for setting 10, 91, 216, 232, 235, 297, 346, calipers, and rules, connecting Gages, calipers, and rules, consider the constant of the const incrustation 1.22
iate 10 (2), 121, 100, 186, 201
date insteing 187, 408
date lated: 3
date in 10 (2), 121, 100, 186, 201
date insteing 187, 408
date in 182, 408
denerator for low water detector 220
denerator for low water detector 220
denerator segrate bar for steam 264
denerators, interest of steam 269
diass, steam 219, 308, 304, 410
diass, interest of steam 280
diass, method of preventing the breaking of by exposure to heat 106
diass, without 186
diass, tool for manufacture of 265
diass, without 186
diass, tool for manufacture of 265
diass, without 186
diass, tool for manufacture of 265
diass, without 186
diass, tool for manufacture of 265
diass, without 186
diass, tool for manufacture of 285
diass, tool for manufacture of 285
diass, without 186
diass, tool for manufacture of 285
drain and grass seed separator 10
preparing 409
devenor, steam engine 10, 288, 328
drain and grass seed separator 10
preparing 409
devenor, steam engine 10, 288, 328
drain machine for binding 329
drain machine 107
drain, method of treating for the manufacture of 383
drain, method of treating for the manufacture of 383
drain, method of treating for the manufacture of 383
drain, method of treating for the manufacture of 383
drain, method of treating for the manufacture of 383
drain, method of treating for the manufacture of 383
drain, method of treating for the manufacture of 384
drain, method of treating for the manufacture of 385
drain, method of treating for the manufacture of 385
drain and paparatus, naval 186
drain and paparatus, nav

Hair Trom hides, apparatus for removing Ltd., 186, 187
Halters, mode of manufacturing 203
Hamers, mode of manufacturing 203
Hamers, depletic 154
Hammer, dental 37
Hames, harness 379
Hand, artificial 217
Handle, auger 218
Hand-pegging machine 394
Hands, artificial, substitute for 26
Hands, artificial, substitute for 26
Hands, artificial, substitute for 26
Hands, artificial, embessing press 286
Hand stamp 10, 282
Hand stamp of the embessing press 286
Hand stamp for one-armed persons 40
Hand stamp for one-armed persons 40
Hand stamp manufacture of 90 (2) er, manufacture of 90 (2)

Harmonium 74
Harvesters, pitman connection for \$30 (2)
Hat 24 (2), 73, 134, 829, 377
Hat, apparatus for attaching mourning
unique to 25
Hat frame 25
Hat frame 26
Hat apparatus for finishing 234
Harness motion for power loom 104
Harness motion for power loom 104
Harness motion for power loom 104 ess 72, 381 ess motion for power loom 104 ow 201, 281, 313 ester 10, 56, 90, 91, 106 (2), 182 (3),

169 (2), 216, 234, 235, 280, 312, 329, 345, 378, 377 (2), 333, 394, 419

Barvester, corn 58

Harvesters, binding attachment to 201

Harvesters, binding attachment to 21

Harvesters, binding attachment to 73

Hay elevator and stacker 80

Hay fork 56, 104, 137, 169, 187, 302, 235, 282, 483, 584

Hay fork 56, 104, 137, 169, 187, 302, 235, 282, 483, 584

Hay machine for raking 410

Hay rack for wagons 138

Head lamp, locomotive 378, 383

Head cast for railroad car seat 9, 42

Hay rack for wagons 188

Head lamp, locomotive 378, 383

Head rest for railroad car seat 9, 42

Heat from a furnace, apparatus for util izing 28

Heater, for wagons 188

Heater, gas 312

Heater, gas 312

Heater, gas 312

Heater, gas 312

Heater, gas 318

Hedge trimmer 129

Hedge, machine for trimming 89

Hedge trimmer 129

Hedges machine for trimming 89

Hellees for magnets 104

Hellographic and photographic spectrum for producing line engravings 363

Hedge, Hning, apparatus for 42

Hinge 43, 133, 217, 260, 267, 277, 330, 408, 469

Hinge, shutter 9, 223

Hod elevator 186

Hod, Hning, apparatus of 42

Hinge and lowering window sash, mode of 106

Hosting and lowering the spectrum for 134

Hook, snap 313

Hooks, elastic mousing for 122

Hood, lady's 74

Hook 153

Hook and lamp, 27

Hook, snap 313

Hoop skirts, apparatus for clasping 313

Hoop-skirt joints 138

Hoy vises, process of preserving the roots of, by charring the stems 12)

Horse-rake 89, 108, 121, 170, 218, 249, 255, 1000

Horse-rake 89, 108, 121, 170, 218, 249, 255, 1000

Hoppers, feed-regulating mechanism for 56
Horse-collar fastening 360
Horse-power 42
Horse-power 42
Horse-power for sawing machine 203
Horse-rake 59, 106, 121, 170, 218, 249, 265, 266, 282, 266, 360, 362, 362 (2), 408, 409 (2), 410
Horse-stake teeth 186
Horse-stake teeth 186
Horse-shoe calking vise 136
Horse-shoe nail machine 170
Hot-blast apparatus 201
Hot-blast a

household and culmary operations, machine for facilitating 315
Huller, grain 10
Hydrant 40, 233
Hydrocarbon burner for heating 24, 133
Hydrocarbon oils and other substances method of separating the products of distillation of 91
Hydrometer 42
Hydrometric apparatus 232
Hydrometer 120

Ice creeper 265, 283
Ice crusher 234
Ice, manufacture of 201
Illuminating gas, manufacture of 266
Illuminating gas, apparatus for making 182, 266
Inclinometer 170
India-rubber, apparatus for euring 361
India-rubber, apparatus for euring 361
India-rubber fabrics, mode of making
binding for 376
Indicator, steam 408
Inistand 104, 120, 169
Injector for steam boilers 234
Injector, gaseous liquid 282
Injector, the Giffard 138
Instrument for finding the centers of circles 249
Intagliotype plate 9

lastrament for inding the centers of circles 20 late 9 Intagliotype plate 9 Intagliotype plate 9. Intagliotype plate 9. Into and seel, manufacture of 92 (3), 281, 394 (3), 38 (4), 38 (4), 38 (7), 100, manufacture of 27 (2), 122 from, curling 24 from for strap joints 171 from for strap joints 171 from plate 170 for the second plate 170 from the second pla

Jack, carriage 104, 313
Jack for shifting coupling 90
Jack, hydraulic 104
Jack, polloning 217, 218, 248
Jack spools 153
Jack, refull 378
Jack, artil 378
Jar, fruit 217, 234 (2)
Jars and came, instrument for lifting 281
Jars, fruit, stopper for 230
Jars, fruit, stopper for 232
Joint for ilghtning rods 170
Joints for skirt hoops 185
Journal box 194 (2), 290, 281 (2), 345
Journal boxes, mode of lubricating 233, 338
Jarcana boxe, railway 91, 314, 345

purnal box, railway 91, 314, 345 purnal boxes, e.c., composition for lining 153

16 Kaolin, etc., apparatus for puryfying 219 Kettle for evaporating sorgnum, sirup.

Lamps, keeping oil cool in 282
Lamps, wind guard and air heater for 287
(2) 315, 304, 410.
Lantern 74, 121 (2), 137, 170, 203, 234, 297
(2) 315, 304, 410.
Lanterns, machinery for manufacturing
Lantern guard 299
Last, 121, 248
Last, darning 381
Latch and boil, combined 240
Latch chuck 8
Latch, close 137
Latch for blinds of chutters 377
Latch for blinds of chutters 377
Latch, for blinds of chutters 377
Latch, lifting 394
Latch, reversible 344
Latch, eversible 346
Latch, for turning heads of nails, tacks, etc. 106
Latch, eversible 346
Latch for turning tool handles 25
Latch for turning tool handles 25
Latch for turning tool handles 25
Latche, wood-turning 25, 191, 183
Laundry, tamily 345
Lead pipe, tin-lined, manufacture of 91
Lead, refning 328
Leather, diving and pressing, machine for 187
Leather, machine for boarding 89
Leather, machine for cutting harness
Leather, machine for cutting harness
Leather, machine for cutting and pressing, machine for 187
Leather, machine for cutting harness
Leather, machine for cutting harness
Leather, machine for cutting water-proof 18, 55, 72, 91, 121, 138, 153, 170, 202, 314

Leanter, mode centrosang, varieties, mode construction of the cons

Liquids, apparreus for preserving beer and other 219
Liquids in easis instrument for measuring 301
Liquids, mait, mode of decarbonizing 222
Liquids, secharine, apparatuse for bell-ducks, for piano 104, 109
Lock safe 88
Lock, traveler's night 314
Lock, traveler's night 314
Lock, window-saah 264, 378
Locke 27, 90, 104, 120, 121, 122, 139, 184, 217, 376, 498, 409, 410, 218, 218, 361
Loom 136, 164, 170, 187, (218, 418, 361
Loom 107 cross weaving 346
Loom for weaving mbroidered fabrics 362

362 om harness, wire heddles for 121 om shuttles, mechanism for operating

Loom sharness, wire heddles for 121 Loom shuttles, meehanism for operating 300 300 Looms, attachment for cloth-regestering Looms, picker for 248 Lubricating compound 217, (2) 218 Lubricating iournals, mode of 282 Lubricator (166, 248, 313, 332 (2), 379 Luting, loom, mode of revertiying 248

Luting, loom, mode of reverifying 248

Machinery, mode of driving 26
Mail-bags, apparatus for receiving and delivering to and from railroad trails and stations 89, 92, 267
Mailet, croquet 360
Mailets, dentists 281, 288
Margie, clothes 409
Marbie-poishing machine 73
Mash tun for brewers 410
Mast coat 59
Matches, manufacture of friction 90, 285, Matches, Matches, Manufacture of friction 90, 285, Matches, Ma

Mast coat 50
Mast, door 18
Mat, door 18
Mat, door 18
Mat, door 18
Mat, door 18
Match, jariter 183, 329
Match igriter 183, 329
Match igriter 183, 329
Match door 185
Match-plate, molder's 393
Measure, board 99
Measure for the human body 58
Measure for meeting 313
Melodoon 26
Melting apparatus 345
Merting for for the human for bending 40, 122
Metal sates, etc., molds for casting 363
Metal, machinery for human for bending 40, 122
Metal sates, etc., molds for casting 363
Metal, for name for melting 59
Metal, sates, etc., molds for casting 363
Metal, for human for bending 40, 122
Metal sates, etc., molds for casting 363
Metal, spoaratus for testing 8
Mill, capacing the shafts of dry gas 202
Mill, spoaratus for testing 8
Mill, capacing 164
Mill, stamping and erashing 103
Mill, stamp

Kadin, etc., apparatus for puryfying 219
Kettle for evaporating sorganum, arrup,
Kettle for evaporating sorganum, arrup,
Kettle for evaporating sorganum, arrup,
Kettle furmace, portable 9
Key- bolt connection of car trucks 106
Key, lock, device for fastening 42
Kilin, dessicating 27
Kilin, mail 376
Kneading dough, machine for 90, 264
Knite and cane stripper, combined 392
Knife-blade holder 392
Knife-blade holder 392
Knife-blade holder 392
Knife for removing green corn from
the cob 334
Knife polisher and grinder 58
Knife, tweeser, and ear spoon, combined
393
Knife polisher and grinder 58
Knife, tweeser, and ear spoon, combined
393
Knife polisher and grinder 58
Knife, tweeser, and ear spoon, combined
394
Knife polisher and grinder 58
Knife, tweeser, and ear spoon, combined
395
Knife polisher and grinder 58
Knife, tweeser, and ear spoon, combined
396
Knife polisher and grinder 58
Knife, tweeser, and ear spoon, combined
397
Knife polisher and grinder 58
Knife, tweeser, and ear spoon, combined
398
Moving machine 147, 327
Moving machine 216, 328, 392, 393, 304
Mowing machine 10wer 89

Mucliage bottle, top for 40 Mule for spinning 201 Mule, self-acting 201 Musical instrument 105, 266 Music stand 281 Mute for musical instrument 391

Nail, horse-shoe 73
Nail machine 170, 202
Nail instrument for extracting 329
Neck yoke and whiffletree socket 233
Necktic 392
Necktic 392
Necktics and shirt collars, clasp for holding together 24
Needle, knitting machine 362
Needles, machine for making 376
Numbering and paging unachine 27
Nut machine 21, 344, 392 N

Numbering and paging machine 27
Nut machine 21, 344, 352

Oldometer 281
Oil, apparatus for obtaining from running streams 73
Oil apress and exterior of 259
Oil barrels, etc., applying solutions to the interior and exterior of 250
Oil barrels, lining process for 42
Oil clock, mannfacture of 16
Oil clock, mannfacture of 16
Oil paint 358
Oil, process for treating 170
Oil wells, method of treating for the removal of paradine 2171
Oil wells tubes, packing for 133, 186 (2), 344
Oil wells, heating by electricity 42
Oil wells, earney projectile for 130
Opening botiles, instrument for 330
Opening botiles, instrument for 330
Opening botiles, instrument for 24
Ordanane, operating 409
Ordanane, arrow projectiles for rified Ordanane, packing projectiles for rified Ordanane, priffing 232
Ore, machine for crushing 23 (2)
Ore, process for treating 192
Ore, isomeric diaphragm furnace for desulphuring 339
organ cablinet 123
Orrery 36
Oscillating rod, protection for pump and other 74
Oven, coke 236
Oyster dredge 122

Packing box, metallic 57

P. Packing box, metallic 5/7
Packing, deep well 29/2
Packing, pision 37/8
Packing tubes of oil wells 23/4
Paddle wheel 59, 99, 286
Paddle wheel, feathering 26/4, 31/3
Paddle wheel, feathering 26/4, 31/3
Paddle wheel 38/8
Paddle sheel feathering 26/4, 31/3
Paddle wheel 5/8, 49/9
Paddle wheel 5/8, 49/9
Paddle wheel 5/8, 49/9
Paddle wheel 5/8, 49/9
Paint or 5/8, 49/9
Paint for the bottoms of ships 10, 4/9
Pailling singes, truck for 5/9
Palling singes, truck for 5/9

in for the bottoms of ships 10, 41 ling stones, truck for 10 and brush, dust 41 , milk 249 s, sheet metal sheet metal, machine for making 40 oons 248

Pantiny 45
Paper bags, apprains for making 138
Paper bags, apprains for making 148
Paper bags, apprains for making 148
Paper bags, apprains for making 148
Paper solar machine for making 148
Paper collar machine 122, 376 (3), 302
Paper collar packing envelope 74
Paper collar packing envelope 74
Paper collar cards, etc., removing from the pointing or embossing press 283
Paper knife handle 89
Paper making machine 10
Paper making machine 10
Paper, mode of preparing for photographic use 369
Paper, mode of preparing for photographic use 369
Paper pulp, manufacture of 104
Paper, substitute for liming 281
Pasteboard, machine for cutting and scoring 203
Pavament, composition 410
Peat, preparing for fuel 120, 314, 138, 368, Pavament, composition 410
Peat, preparing for fuel 120, 314, 138, 368, Pavament, composition 410
Peat, preparing for fuel 120, 314, 138, 368, Peat shellow and cherry stoner 249
Pen and pencil case 24, 201
Pen and pencil case 24, 201
Pen distributor 57
Pen fountain 281, 362
Pen holder 288, 344
Pencil-sharpener 129
Pen holder 288, 344
Pencil-sharpener 129
Pen holder 288, 344
Pencil-sharpener 129
Pen holder 288, 345
Perolsum, apparatus for filicing 120
Petroleum, process for rendering barrels impervious to 120
Petroleum, instrument for testing 185
Petroleum, process for rendering barrels impervious to 120
Petroleum, instrument for testing 186
Petroleum, instrument for testing 186
Petroleum, process for rendering barrels impervious to 120
Petroleum, process for rendering barrels impervious to 120
Petroleum, process for rendering barrels impervious to 120
Petroleum, process for coloring 186
Petroleum process for soloring 187
Petroleum process for coloring 187
Photographic camera 122
Photographic camera 122
Photographic camera 122
Photographic printing process for coloring 188
Photographic printing frame for porcelain or glass pictures 187
Pencolore acidon 41, 88, 136, 137
Pinno-forte sciol. 41, 88, 136, 137
Pinno-forte

g Pipe, tobacco 10, 233, 360, 348
Piston packing 40, 571, 59, 136, 185, 201, 299, 408

408

Piston in deep wells, adjusting packing of Piston reds, packing ring for 184

Pistons, steam, metallic packing for 315

Pistons, steam, metallic packing for 315

Pitcher, ice 123, 134

Pitcher, nonlasses 228

Pitane, postand 238

Pitane, spint 345, 376

Plane, spint 345, 376

Plane, pachic 217, 234, 298

Planters 56, 106, 106, 109, 218, 232, 235, 209, 208

Pistons, bending and punching draw-based 314

Platform and windlass, combined 328

Plating or indebing misease of paper, machine for 184

Platform independent of paper, machine for 184

Platform and windlass, combined 328

Plating or indebing misease of paper, machine for 184

Plow 24, 40, 57, 73, 104, 136, 154, 183 (2), 186, 187 (2), 202, 218, 314, 329 (2), 380, 578, 393

168, 187 (2), 202, 218, 314, 329 (2), 380, 371, 393
Plowshare 345
Plumber's hook blank 123
Focket-kinife and pistol, combined 186
Focket, australia of the proceedings of the Pocket of

ters'

363 Press 91, 201 Press 91, 201 Press, baling 9, 27, 40, 42, 187, 328, 361 Press, beater 42, 107 Press, brick 232 Press, cider 239 Press, cotton 238, 345

Press, brick 332
Press, cotton 298, 345
Press, cotton 298, 345
Press for bailing cotton 314
Press for forming metal basins 393
Press, for pressing guspowder 297
Press, pressing guspowder 297
Press, pressing guspowder 297
Press, pressing 37
Press, pressing 37
Press, pressing 394
Press, pressing 394
Press, pressing 394
Press, pressing 394
Pressing beet-metal paus, me-hime for 296
Pressing heet-metal paus, me-hime for 296
Printing abdeet-metal paus, me-hime for 296
Printing and de-ding cotton, linen, etc. 330
Printing and de-ding cotton, linen, etc. 330
Printing find 296
Printing frame, photographie 133
Printing find 296
Printing frame, photographie 133
Printing find 296
Printing frame, photographie 133
Printing find 296
Printing and de-ding cotton, linen, etc. 330
Printing and 296
Propelling appa, atius 297
Propelling appa, atius 297
Propelling appa, atius 297
Propelling spikelening by friction 122
Wileyen teleptoning 178
Wileyen teleptoning 578

Quartz crusher 186, 297 (2), 315 Quartz mill 232

Quarte mill 252

Rack, clothes 186, 376
Rack, combination, for printers' use 229
Rack, sheep 56, 90, 137, 296
Radiator, heat 49
Rath, cotton bale 376
Raislang monitor turreus by hydraulic pressure, means of 394
Rake, horse 42, 202, 377
Rake, grain 42
Rake, barvester 183, 170, 216 (2), 218, 283, 286, 228, 256 (2), 368
Raking and loading hay, machino for 137
Rail, railroad 188, 301, 288
Railvay 30
Railvay

punching the frames of draw-heads for punching at the punching the frames of draw-heads for 314.

Railway frog 25, 74, 106

Railway train and car, construction of 120

Railroad cars, mode of attaching stakes to 320

Railroad cars, moderal for 367. Ealiroad cars, pedestal for 267 Rallroad cars, running gear of 282 Rallroad chairs, fastening, screw bolt for 40

Baliros dears, pedestal for 267
Raliros dears, running gear of 282
Raliros dears, running gear of 282
Raliros dears, running gear of 282
Raliros dears, fastening, screw bolt for 49
Raliros divide 26
Raliros dears de dears dears de dears dea

Rollers, fluied, machinery for making 348
Rolling apparatus 27
Rolling irregular forms, machine for 88
Rolling wire, apparatus for 168
Rolling wire, apparatus for 168
Rolling machine arals 329
Roofing material, preparing, mostic 234
Roofing material, preparing, masic 234
Rose engine for ornamenting giasa 154
Rose, authoute for 28
Rosin, authoute for 28
Rosin, authoute for 58
Rosin, withoute for 58
Ruffing for 168
Ruffing for 168
Ruffing device for sewing machine 233
Ruffing device for sewing machine 233 fluted, machinery for making 316 apparatus 27 tregular forms, machine for 88 Rudder 89
Ruffing device for sewing machine 233
Rufe, carpenter's 91
Ruffing and paper cutter 58
Ruffing and printing machines, combination in 281
Rumning george and printing machines, combina-Running gear of railroad cars 90 Running gear of street locomotives 362

Sabot for projectile 312
Sack, catamental 202
Bad-fron future 133
Sad-fron future 133
Sad-fron future 133
Sad-fron future 133
Sad-fron feater 24
Safety writer for receing fore and aft 410
Balls of chromium, manufacture of the 171
Salve 107
Sah fastener 74, 89, 108, 154, 409
Sash supporter 138, 153, 232, 264
Saturating natural and artificial stone, solution for 58
Saturating natural and artificial stone, solution for 58
Saw gummer 40
Saw 23, 235, 594
Saw, sam 12, 235
Saw, scroll 562, 392
Saw, scroll 562, 392
Saw escroll 562, 392
Saw, scroll 562, 392
Saw, scroll 562, 392
Saw, scroll 562, 392
Saw, scroll 562, 392 Saw, acroll 362, 392
Saw sets 231
Saw teeth for saws 201
Eaws, attaching cross-cul, to their handles
312 Eaws, attaching cross-cut, to deer manufes 312

Baws, griding and polishing 298

Saws, mode of siarpening 91, 376

Sawing machine 74 (3), 184, 186, 233, 249, 298

Senfiold 121

Seale baref and match splints, machine for cuting 329

Scale baref of steam bollers 137

Seales baref and tunnel 298

Scales, 18416rm 284

Scales, 18416rm 282

Scales, platform 282 cales pen and tunnel 298
cales, portable 249
cales, portable 249
cales, portable 249
cales, portable 249
control 255
cales, portable 249
control 255
cales, portable 249
control 255
cales, portable 249
capper, control 255
cappe chime for 42
Screen, fire 142
Screen, fire 143
Screen, grain 143
Screw-child, 143
Screw-child, 147
Screw-child, 147
Screw-child, 147
Screw-topa, reversing the motion of 27
Screw-sing, 147
Screw-topa, reversing the motion of 27
Screw-topa, 147
Screw-topa,

Separating grease from slush, apparatus for 41

og ocher from sand, apparatus for

376 Sewing machine button-hole 169, 249, 250, 330, 346 330, 346
Sewing machine, carriage and castor for
Sewing machine, castor for 265
Sewing machine, cloth guide for 24
Sewing machine for making ruffled fabrics
248
Sewing random for making ruffled fabrics

294 account action of several machine, binder guide for 91 Sewing machines, owder for 216 Sewing machines, device for controlling the motion of 599 Sewing machines, driving clutch-pulley for Sewing machines, driving clutch-pulley for Sewing machines

ewing machines, embroidering attachment for \$78
wing machines, feeding device for 216
wing machines, guide for 154, 266, 378
hackle, wagoo-abatt 344
hade, lamp 43, 292
haping and hardening articles of steel,
process of 362
saping heels of boots and shoes, machine
for \$78

Estatus visting mischine 138
Sinaying and hardening articles of steel,
process of \$52
Shaping heels of boots and aboes, machine
for 378
Shaping heels of boots and aboes, machine
for 378
Shappener, knife 345
-neurs, cutting and grasping, 106
chears for cutting metal 264
Shears for cutting metal 264
Shears for cutting metal 264
Shears, pruning 73
Sheathing for vessels, 362
Sheathing, annealing and pollabing 88
Sheet iron, manufacture of 244
Sheather, annealing and pollabing 88
Sheet iron, manufacture of 244
Sheathing, annealing for cutting 281
sheather, annealing for cutting 281
sheather, compound explosive 36
Sheath of the sheather of the sheath of the sheather of the sheathe

Shipa' bottoms, composition for coating 134
Shipa, construction of iron 314
Shipping and unshipping hind boards to
Shirt boards, paper 185
Shirt collar and board 91
Shoe 194, 187, 2.18
Shoe Ivake 231
Shoe

Sidney and covering buildings with wood 328
Sieve 281
Sieve 512 separating oats from wheat 393
Sifter, coal and ash 9
Sifter, coal and ash 9
Sifter, toal 4 (2). 43, 56, 88, 107, 217, 218, 223, 220, 298, 514, 4, 330
Signal 1amps, raising and lowering 10
Signal lamps, raising and lowering 10
Signal, railroad 263
Signal, some separating from 126
Sirup and angar from Indian 263
Sirup stand for soda fountains 122
Sirup stand for soda fountains 122
Sirup stand for soda fountains 123
Sirup stand for soda fountains 125
Sirup stand for s

Siate frames, machinery for dressing edge of 23-4
Slate, school 362
Slede, childrens' 377
Sleeping car 25
Sleigh 83, 312
Sleigh 93, 312
Slicer, regetable 57
Sliding doors of railway cars 122
Sliding drait cable for railroad 184
Slipper, carget 72
Small arms, handle attachment to 250
Small arms, handle attachment to 250
Small arms, handle stachment 203
Snap hook 9, 37, 123, 170
Snap hook for whiffletrees 362
Snaph cot for whifletrees 362
Snaph cot for whiffletrees 362
Snaph cot for whifletrees 362
Snaph cot for whifletrees 362
Snaph cot for whifletrees

Show drits on Fairroad tracks, device for preventing 28
Snow pilow 120
Soap 38
Soap 38
Soap 38
Soap 18
Soap 18
Soap Fairroad 124
Soap frame, construction of 58
Soap, liquid 154
Soap, manufacture of 3.30
Socket for hee, chisel, etc. 40
Soda 60
Soda water apparatus 249, 576
Soda water apparatus 249, 576
Soda water apparatus, m-thod of constructing the acid chamber of 201
Sofa or lounce 256
Sodies water apparatus, m-thod of sonstructing the acid chamber of 201
Soldering fruit cans 231
Sound, apparatus for deadening 11
Sounder magnet 201
Sound, apparatus for deadening 265
Spading magnetine 20
Spike, railroad 27
Spike, railroad 28
Spituning machine 60
Spoting 10
Spike 10
S

etc. 39
ool for winding yarn for beaming 266
ooling machine for tape looms 361
ooling thread, machinery in 297
oon, sheet-metal 138

Spool for winding yarn for beaming goo spooling machine for tape icoma 30. Spooling threat, machinery in 297 Spooling threat, and the spooling threat spooling the spooling threat spooling the spooling spooling threat spooling sp

Stirrup Assessing 187
Stock, die 381
Stock for holding acrew-cutting dies 313
Stockings 249
Stock, to 161 dies 58
Stone, artificial 59
Stone, artificial 59
Stone, artificial 59
Stone, artificial 51
Stone, artificial 52
Strave 52
Strave 52
Strave 52
Strave 53
Strave 53
Strave 53
Strave 54
Strave

of 217 Supports, clastic, for bedsteads, etc. 329 Surgical apparatus far exsections 233 Suspenders 235, 376 Swarm indicator for bechives 298 Suspenders 258, 376 Swarm indicator for beehlves 298 Swine 138, 248 Switch, Tailroad 56, 153, 154, 170, 297, 345, Syringe 202 Syringe, catarrhal 313 Syringe, enema, mold for 345

T Table 89, 170, 185, 249
Table and bedstead combined 184
Table lor invalid 74, 186, 292
Tables, composition for transparent 299
Tackie hook 10
Tackie 10
Tackie hook 10
Tackie 10
Tack

Tapering bars or plates, machinery for rolling 74
Tapes, ribbons, and threads, device for arranging for use 220
Test-kettle 25
Test-h, composition for cleansing the 232
Telegraph, electro-phonetic 154, 377, 379
Telegraph wires, insulators for 88, 139
Telegraph wires, machine for perforating paper
Telegraph wires, machine for 201
Tempering saws, files, etc., machine for

Tense awa, files, etc., machine for 138

Tens on mechanism for looms for wearing goods with elastic strands 121
Tenosing spokes, machine for 314
Tent frame by a paratus for 144
Tent frame by a paratus for feeding Threath gove for finishing 29
Thrashing machine 183 (2)
Thrashing stream for sewing machine 183
Thread, device for finishing 29
Thread-waxing attachment for sewing machine 34
Threading serews, machine for 377
Thumbe, a two-pip 34
Thrands, develope 34
Threading serews, machine for 378
Thumbe, a two-pip 34
Threading serews, machine for 378
Thumbe, a two-pip 34
Threading serews, machine 378
Troing and plating iron serews 154
Tire-machine 136
Tobacco, machine for cutting 122
Tobacco, machine for pressing 89
Tobacco, process of curing, 67
Tobacco, machine for pressing 89
Tobacco, process of curing, 67
Tobacco, machine for pressing 89
Tobacco, process of curing, 67
Tobacco, machine for pressing 89
Tobacco, process of curing, 67
Tobacco, machine for pressing 89
Tobacco, process of curing, 67
Tobacco, machine for pressing 89
Tobacco, process of curing, 67
Tobacco, machine for pressing 89
Tobacco, process of curing, 67
Tobacco, machine for pressing 89
Tobacco, process of curing, 67
Tobacco, machine for pressing 89
Tobacco, process of curing, 67
Tobacco, machine for pressing 89
Tobacco process of curing, 67
Tobacco, machine for pressing 89
Tobacco, process of curing, 67
Tobacco, machine for pressing 89
Tobacco, process of curing, 67
Tobacco, machine for pressing 89
Tobacco, process of curing, 67
Tobacco, machine for pressing 89
Tobacco, process of curing, 67
Tobacco, machine for pressing 89
Tobacco, process of curing, 67
Tobacco, machine for pressing 89
Tobacco, process of curing, 67
Tobacco, machine for pressing 89
Tobacco, process of curing, 67
Tobacco, machine for cuting 122
Tobacco, machine for cuting 122
Tob

Ses
Trimming chain links, machine for 362
Trick, css 137, 237
Truck froes, apparatus for bending and
Truck froes, apparatus for bending and
Trunk 128
Trunk nails, machine for putting head, filling on 35
Truns 137, 362
Truns to bridges 56
Try square 170
Trube, deep well 157
Tube, deep well 157
Tube, days ling 128
Tube, drills, etc., etiractor of 169
Tubes, drills, etc., etiractor of 169

Tubes of boilers or condensers, packing for Tubes, machine for boring 378 7, [122] Tubes, machine for finishing iap-welded 315 Tubes or spouts, machines for making metallic 91 Tubing, manufacture of flexible 361 Tubing, manufacture of flexible 361 Tubing, manufacture of deep wells 314 Tumblers, apparatus for deep wells 314 Tumblers, apparatus for washing 99 Tumblers, pitcher, etc. 90 Tumblers, incher, etc. 90 Tumblers, incher, etc. 90 Tumblers, washingture of 120 for 329 Turp entine, manufacture of 120 Turn table, railroad, 377 Tweers, 89, 90 (2) Type, script printing, 248

Umbrella 9, 202, 217, 297 Umbrella bolder 249 Uterine supporter 137

Uterine supporter 137

Valiae, traveling 202

Valve 28

Valve 28

Valve, balanced ping 393

Valve, balanced gile 394

Valve, balanced 394

Valve, balanced 394

Valve, cone 266

Valve 201-007, 721, 230, 264

Valve, cascape, for pumps 40

Valve for steam regimes, 231, 218, 248, 266

(2) 245, 362

Valve for steam rediator 202

Valve for steam rediator 202

Valve gear for steam harmer, 138, 266

Valve, gear for steam harmer, 138, 266

Valve, safety, for steam generators 104, 265

Valve, balanced side 88

Valve, balanced side 88

Valve, balanced 104, 252, 314

Valve, balanced 104, 252, 314

Valve, balanced 104, 252, 314

Venited 121

Ventilator, 58, 166 (2) 207, 528, 329, 345

Ventilator, 58, 166 (2) 207, 528, 329, 345

Ventilator, 18, 186, 249, 360

Vermin, composition for destroying 207

Vessel for holding petroleum 88

Vessels, construction of 72

Vinegar, manufacture of 376

Vine 104

Wagon boxes, casting skeins or 284

for 311
Wines, process of impurson,
Winelass 9
Windless 8, 137
Window 68, 137
Window bind rods, machine for winding
201
Window curtains, cord tightener for 316
Window curtains, cord tightener for 316

Window St. 137.

Window billnd rods, machine for winding Window billnd rods, machine for side Window cords, mode of attaching sashes to 152

Window shade 440

Window sash, device for operating 88

Window sash, spring catch for 28

Window such, spring catch for 28

Window such, spring catch for 28

Window spring to the form of th

grass cloth, machine for preparing Wool, apparatus for oiling 11 (2) Wool-washing machine 345 Work stand, lady's 85 Working power for sawing 154 Wrench 105, 107, 265, 400 Wringer, washing mechane 153 Working power for sawing 100
Wrench 105, 107, 265, 400
Wringer, washing machine 153
Wringing machine 91, 100, 106 (2)
Wrist pins, method of making 122
Wrist pins, method of making 122
Writing fluid 197
Wrought from from the ore, manufacWrought from manufacture of 106
Wrought from, manufacture of 106

Yoke, ox 90 Yoke, neck 328, 376

Raissues.

Ari, apparatus for carbureting 187
Aricles of irregular form, forming and punching 257
Auger 250
Blacking, etc., composition for slate furnace 299
Boiler, steam 250
Boiler tubes, mechanism for scaling 250
Boiler, brewe's 11
Boile heading machines 263
Brake, self-acting pulley 43
Brake, self-acting pulley 43
Brake, self-acting pulley 43
Brake of the self-acting pulley 43
Brake of the

Brake, self-acting pulley 43
Brick machine 396
Broom 171
Button holes and embossing and printing articles of wearing apparel, machine for incising 43
Button holes and embossing and printing articles of wearing apparel, machine for incising 43
Gurpet-bag frame 107
Cartridge box 257
Cartridge box 257
Chuck, self-centering 346
Chuck, self-centering 346
Chuck, lathe 139
Cigars, mouthpiece for 379
Collars, apparatus for folding paper 363
Collar, turndown enameled paper 117
Collars, apparatus for folding paper 185
Copal varnish, process for making 363
Corks, machine for cutting 74
Corn sheller 297
Die for stamping rings 187
Die for stamping rings 187
Die for stamping rings 187
Englies, steam 171
Englies, steam 171
Englies, steam 171
Englies, steam proces waste folted fabric Fire-arm, breeck loading 187 (3)
Foundain, soda 75
Foundain, soda 75
Foundain, soda 75
Foundain, soda 75
Fruit, act, house for preserving 107
Furnace, steam boiler 171 (3)
Gas and other retoris 11
Gold and silver, amalgamating and collecting 74
Governor, steam-curine 107, 187
Harvester 11, 123, 316, 331

ing 74
Governor, steam-engine 107, 187
Harvester 11, 123, 315, 331
Harvester, clover and grass seed 11
Harvester, clover and grass seed 11
Harvester of grain and grass 27
Hats and bonnets, box for 107
Hoisting machine 11, 187
Hook, tackle 107
Horse-rake 74
Iron, manufacture of 219 Iron, manufacture of 219
Iron, reining 379
Land, tailow, etc., apparatus for rendering 123
Leather, machine for waltit

Iron, manufacture of 229
Lang, 187, etc., apparatus for renderIron, refuling 379
Lang, 187, etc., apparatus for renderIron, 187, etc., apparatus for senderIron, 187, etc., apparatus for sendering 123
Must, machine for finishing 11
Offal, method of treating 579
Oils and fats. apparatus for rendering 123
Ores, decomposing and desulphurizing,
furnace for 43
Paper pulp, manufacture of 330
Petroleum burner for cooking, etc. 335
Pipe tobacco 367
Barronico 187
Press, sorew 363
Previsions, curing 239
Railroad cars, for transporting oil and
other liquids, constructing 74
Reaping machine 27 (3)
Rowlock 2-3
Railroad cars, for transporting oil and
other liquids, constructing 74
Reaping machine 37 (3)
Rawing machine 30
Rich, four 346
Rich, sheet oil 197
Rich wire, sizing and finishing, apparatus
for 43
Splints, machine for cleaning 379
Phingie machine 369
Rich apparatus for 3
Siep-ladder 27
Rich decent apparatus for 3
Siep-ladder 27
Rich decent 31
Rich apparatus 32
Rich apparatus 32
Rich apparatus 32
Rich apparatus 33
Rich apparatus 34
Rich apparatus 35
Rich apparatus 36
Rich apparatus 37
Rich apparatus 37
Rich apparatus 37
Rich apparatus 38
Rich apparatus 37
Rich apparatus 38
Rich apparatus 37
Rich apparatus 47
Ri

Extensions.

Account book, machine for numbering the pages of 251 acchine for numbering the Car, railress 199 busines, seating 199 busines, seating, machinery for 59 Harvester cutter, arrangement for controlling 251 Harvester frames, arrangement of joints for attaching trucks to 251 trovy, process of bleaching 256 Lauters 199 Lauters 199 Lauters 250 Lauters 250 Lauters 251 cautes accurring plates. Ivory, process of bleaching 250
Lantern 59
L

